

REMARKS

Claims 1-20, all the claims pending in the application, stand rejected.

Claim Rejections - 35 U.S.C. §112

Claim 20 is rejected under 35 U.S.C. §112, second paragraph as being indefinite. The Examiner notes that claim 20 recites the limitation "the transporting member of claim 7" and asserts that there is insufficient antecedent basis for this limitation in the claim. Applicants have amended claim 20 in a manner thought to resolve this rejection.

Claim Rejections - 35 U.S.C. §102

Claims 1-5, 7-11, 13, 16 and 19 are rejected under 35 U.S.C. §102(b) as being anticipated by Skinner et al (4,342,793). The present invention is directed to the structure of a cleaning sheet for removing foreign matter adhering to the tip of a probe needle of a probe card. The cleaning layer contains a urethane polymer and a vinyl polymer. The composition of the mixture is selected such that the probe needle is stuck into the cleaning layer 1, as shown in Fig. 3A, and is drawn out from the cleaning layer 1 as shown in Fig. 3B. This motion allows foreign matter 23, such as aluminum oxide adhering to the tip of the needle, to remain in the cleaning layer and to be removed from the probe needle, as explained at pages 18 and 19. The probe needle may be inserted to a sufficient depth that enables removal of the foreign matter, while preventing wear or erosion of the probe needle tip.

One characteristic in an exemplary embodiment of the invention is the fact that there is no abrasive used in the material so that the probe is not eroded during the cleaning process. Applicants respectfully submit that at least this feature distinguishes over the cited art.

Skinner et al

The patent to Skinner generally teaches a resin compound having utility as a protective, transparent or translucent coating for various substrate materials, as described at col. 1, lines 10-15. The application of the composition in a variety of ways is explained at col. 9, lines 64-68 and the particular compounds used are explained throughout the specification. As argued by the Examiner at pages 2 and 3 of the Office Action, the limitation to a "cleaning sheet" is viewed as

an intended use and that the coatings in Skinner et al may be used for a variety of purposes including wiping debris from a probe needle. However, Skinner does not disclose or suggest that there is no abrasive used in the material so that the probe is not eroded during the cleaning process. Accordingly, Applicants respectfully submit that amended independent claims 1, 19, and new claim 21 are allowable.

Claim Rejections - 35 U.S.C. § 103

Claims 14-15, 17-18 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Maekawa et al in view of Skinner et al. Applicants respectfully traverse this rejection for at least the following reasons.

Claims 14-15 and 17-18 concern the further limitation that the cleaning sheet is provided on a support through a sticking means and that the support is a wafer. The Examiner notes that Maekawa illustrates a probe 1 that slides over an abrasive layer 5 that rests on a deformed member comprising a first elastic layer 4a and second elastic layer 4b. The formed member 4 is mounted to a base plate 3 which in turn is mounted to a wafer table 2. The Examiner asserts that the base plates may be wafers, as disclosed at paragraph [0069] and that polyurethane resins are chosen for their hardness and excellent sliding properties, as disclosed at paragraph [0062-0063]. The Examiner admits that the reference does not disclose the claimed urethane resins containing vinyl polymers mixed therein. Accordingly, the Examiner looks to Skinner for such disclosure and asserts that they may be used in place of the binder resins of Maekawa to provide "hard fully crosslinked coatings having improved toughness and solvent emission".

Independent claim 1 has been amended to specify a lack of an abrasive which distinguishes from Maekawa. Because the present invention intends to have the probe penetrate into the layer, rather than slide across it, Maekawa et al teaches directly opposite to the present invention. Maekawa requires use of an abrasive, which is consistent with having a tough outer layer that would prevent penetration by a probe.

Amendment Under 37 C.F.R. § 1.111
U.S. Application No. 10/802,883

Claims 6 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Maekawa et al in view of Skinner et al, as applied to claims 14-15, 17-18 and 20 above, and further in view of Back et al (2003/0027496). Applicants respectfully traverse this rejection.

The Examiner admits that Maekawa et al and Skinner et al do not teach pressure sensitive adhesives. The Examiner looks to Back et al for a disclosure of a method of cleaning a probe tip using a multi-layer adhesive and abrasive pad as attached to a silicon wafer. Applicants submit that Back et al is consistent with the approach to cleaning taken by Maekawa et al, namely, the use of a hard resin material that permits sliding of a probe across an abrasive surface, rather than penetration into the material.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Amendment Under 37 C.F.R. § 1.111
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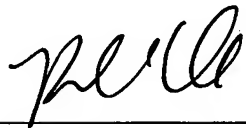
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